

ABSTRAK

KARAKTERISASI RESERVOAR MENGGUNAKAN ANALISA ATRIBUT AVO (*AMPLITUDE VARIATION WITH OFFSET*) *MIDDLE BAONG SANDSTONE*, LAPANGAN KOMATSU, CEKUNGAN SUMATERA UTARA

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Telah dilakukan analisis atribut AVO (*Amplitude Variation with Offset*) berdasarkan kenampakan DHI (*Direct Hydrocarbon Indicator*) berupa *brightspot* pada *Middle Baong Sand*, Lapangan Komatsu, Cekungan Sumatera Utara untuk karakterisasi reservoir. Penelitian ini menggunakan data seismik *prestack CDP gather* 2D yang berjumlah 8 line dengan arah relatif dari Barat Laut – Tenggara dan Barat Daya – Timur Laut serta didukung oleh 2 data sumur well-01 dan well-02.

Data seismik CDP *gather* diubah menjadi penampang atribut *intercept* (P), *gradient* (G), dan *gradient* (P*G) setelah koreksi (*normal move out*, *mute*, *super gather*, *angle gather*) data guna meningkatkan S/N ratio. AVO forward modeling dilakukan pada kedua data sumur well-01 dan well-02 yang digunakan sebagai data pendukung pada tahap interpretasi. AVO forward modeling ditampilkan dalam bentuk sintetik atribut *intercept* (P), *gradient* (G), dan *gradient* (P*G). Setelah dilakukan *well seismic tie* pada kedua data tersebut dilakukan ekstraksi parameter atribut *product* (P*G) yang kemudian dibuat peta penyebaran reservoir gas (*anomaly AVO map*) dan ekstraksi parameter kedalaman yang menghasilkan peta *top* reservoir (*isochron map*) dan peta ketebalan lapisan reservoir (*isopach map*).

Interpretasi atribut *intercept* (P), *gradient* (G), dan *gradient* (P*G) menunjukkan bahwa lapangan Komatsu memiliki area prospek reservoir *sand gas* kelas III. Dari peta ketebalan lapisan reservoir diketahui lingkungan pengendapan pada Lapangan Komatsu merupakan *channel* dan maksimal ketebalan reservoir mencapai 38 ms. Pada peta anomali AVO diperoleh area penyebaran reservoir terpusat pada zona *channel* dan luasan area reservoir mencapai 7 km². Interpretasi peta *top* reservoir (*isochron map*) kedalaman reservoir mencapai 1248 ms hingga 1338 ms.

Kata kunci : Atribut AVO, AVO *forward modeling*, Karakterisasi reservoir.

ABSTRACT

RESERVOIR CHARACTERIZATION USING AVO (AMPLITUDE VARIATION WITH OFFSET) ATRIBUT ANALISYS AT MIDDLE BAONG SANDS, KOMATSU FIELD, NORTH SUMATERA BASIN

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AVO (Amplitude Variation with Offset) atribut analisys based on appear of DHI (Direct Hidrocarbon Indicator) like a brightspot at Middle Baong Sands, Komatsu Field, North Sumatera Basin has been performed for reservoir characterization. Research carried out by using seismic data prestack CDP gather 2D amount 8 line with relative direction from North West to South East and South West to North East supported by two wells data well-01 and well-02.

Seismic data CDP gather was changed to intercept (P), gradient (G), and gradient (P*G) atribut that have been corrected (normal move out, mute, super gather, angle gather) to increase S/N ratio. AVO forward modeling at both of well data well-01 and well-02 used as supported data in interpretation stage. AVO forward modeling showed in form intercept (P), gradient (G), and gradient (P*G) atribut sinthetic. After well seismic tie at both of data seismic and well later extraction of parameters product (P*G) atribut and it be made gas reservoir distribution map (anomaly AVO map) and parameter of depth be made top reservoir map (isochron map) and reservoir thichnees map (isopach map).

The interpretation of intercept (P), gradient (G), dan gradient (P*G) atribut represent that Komatsu field have sand gas reservoirs propect area at class III. From the reservoir thickness map (isopach map) get about sedimentation environment at Komatsu Field like channel and maximum thickness of reservoir up to 38 ms. Anomaly AVO map get about location distribution of reservoir at channel zona and extensive of reservoir area up to 7 km². Interpretation of top reservoir map get about depthness of reservoir is 1248 ms to 1338 ms.

Key words : AVO Atribut, AVO forward modeling, Reservoir characterization.